



# Safer Science

February 2010, Best Practices for Safety Issues in the Science Classroom and Laboratory

Ken Roy

## NSTA Portal to Science Safety

Since the publication of the *National Science Education Standards* (NRC 1996), high school-level science has become more hands-on and more process- and inquiry-based. With this “doing” of science comes a greater need for safety training and preparedness for science educators. The many legal standards and best practices require that a safety approach protect both students and teachers. Where can a science teacher find resources to help meet this need?

The National Science Teachers Association’s (NSTA) Science Safety Advisory Board recently launched the Safety in the Science Classroom portal (see “On the web”). This portal serves as a gateway to safety resources for teachers, supervisors, and administrators. The first resource listed is the *OSHA Training Requirements and Guidelines for K–14 School Personnel*. This document provides a definitive summary of all relevant Occupational Safety and Health Administration (OSHA) requirements and guidelines and points out the varied legal requirements at both national and state levels. These requirements are mandated for most school employers (e.g., boards of education) in training employees (e.g., teachers, supervisors, and administrators).

The Safety in the Science Classroom portal also contains an evolving list of safety resources for elementary, middle, and high schools. The list includes professional societies, federal and state agencies, nonprofit and for-profit companies, and science supply houses that provide safety services and products for K–12 schools. All of the for-profit companies on the list offer free materials or services to K–12 schools.

What kind of resources can high school science educators expect to find on this list? Here are some safety resources that may be of interest:

- ◆ American Association of Poison Control Centers: poison prevention resources and tips
- ◆ American Chemical Society: chemical storage resources and numerous publications, including *Safety in Academic Chemistry Laboratories* and *Recommendations for Goggle Cleaning*
- ◆ Centers for Disease Control and Prevention: *School Chemistry Laboratory Safety Guide*
- ◆ Cole-Parmer: the Chemical Resistance Database
- ◆ Council of State Science Supervisors: *Science and Safety, Making the Connection—A Secondary Safety Guide*
- ◆ Environmental Protection Agency: the School Chemi-



cal Cleanout Campaign (SC3) and the *Chemical Management Resource Guide for School Administrators*

- ◆ Flinn Scientific: *Chemical Hygiene Plan* and other resources on overcrowding in science labs
- ◆ The Hartford: *An Overview of OSHA’s Laboratory Standard 29 CFR1910.1450*
- ◆ Laboratory Safety Institute: many safety publications
- ◆ Local Hazardous Waste Program in King County Metro (Seattle): *Rehab the Lab*, an advisory list of acceptable chemical uses
- ◆ Massachusetts Institute of Technology: *Tips for Sustainable Solvent Practice* and the *Generic Solvents Alternative Guide*
- ◆ National Institutes of Health: the Household Products Material Safety Data Sheets (MSDS) Database
- ◆ National Oceanic and Atmospheric Administration: a chemical database with response recommendations for over 6,000 chemicals
- ◆ National Science Education Leadership Association (NSELA): NSELA professional safety practice position statements, including *Occupancy Loads in School Science Laboratories* and *Experiments/Activities With Human Blood and Other Potentially Infectious Materials (OPIMS)*
- ◆ NSTA: NSTA position statements—including *Liability of Science Educators for Laboratory Safety*—and many books on safety
- ◆ Science and Safety Consulting Services: *Chemical Substitution List* and Eye Protection Options poster
- ◆ Virginia State Department of Education: *Safety in Science Teaching* manual
- ◆ Web resources for MSDSs

### Final thought

The Safety in the Science Classroom portal contains a list of valuable resources for science educators. Teachers should be aware that the list does not supersede school, local, state, or federal laws; regulations; codes; or professional standards. Ultimately, it is the science teacher's and school administrators' responsibility to make science safer using appropriate legal standards and best professional practices under "duty of care."

*Ken Roy is director of environmental health and safety for Glastonbury Public Schools in Glastonbury, Connecticut, and NSTA's science safety compliance consultant. If you have questions or an issue dealing with safety that a future column might help address, send an e-mail to [royk@glastonburyus.org](mailto:royk@glastonburyus.org).*

### Author's note

Any for-profit company that provides free materials or services to K–12 schools and wishes to be listed on the Safety in the Science Classroom portal should send a request to Ken Roy, NSTA's science safety compliance consultant, at [royk@glastonburyus.org](mailto:royk@glastonburyus.org), or Linda Stroud, NSTA's Safety Advisory Board chair, at [lmstroud@aol.com](mailto:lmstroud@aol.com).

### On the web

NSTA Portal—Safety in the Science Classroom: [www.nsta.org/portals/safety.aspx](http://www.nsta.org/portals/safety.aspx)

### References

National Research Council (NRC). 1996. *National science education standards*. Washington, DC: National Academies Press.



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